REMARKS

Claims 1-31 remain in this application; claim 32 was previously withdrawn.

Claims 1-8, 10-18 and 20-28 stand rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,526,558 to Durham. The applicant respectfully submits that claims 1-8, 10-18 and 20-28 are not anticipated by Durham.

Claims 1-8, 10-18, 20-29 and 31 stand rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,155,943 to Ledvina et al. The applicant respectfully submits that claims 1-8, 10-18, 20-29 and 31 are not anticipated by Ledvina.

Applicant respectfully submits that neither Durham nor Ledvina can support the required prima facie evidence of anticipation to support a rejection under 35 U.S.C. §102(b) of the chain and sprocket drive system of Claims 1-19 and 27-31, or the method of reducing chain tensions of Claims 20-26. As the Office Action acknowledges, neither reference discloses or suggest a sprocket or method for reducing chain tensions.

The Office Action relies entirely on the alleged inherent disclosures of the references. This requires at minimum, prima facie evidence that the sprockets of the Durham and Ledvina necessarily satisfy each and every element of Claims 1-19 and 27-31, and necessarily disclose each and every step of the method Claims 20-26. "The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic" MPEP 2112, §IV, p. 2100-54. Applicant respectfully submits that the Office Action does not provide the required showing of fact or supported technical reasoning to establish that either cited reference necessarily satisfies each of the limitations of the cited claims. See Id.

With respect to the method Claims 20-26, neither reference discloses a method for selecting and arranging root radii that will necessarily redistribute chain tensions to reduce the overall tension force applied to the chain. Thus, Applicant

submits that there is no support for the rejection of those claims in view of either cited reference.

Furthermore, Applicant further respectfully submits that in the absence of the required prima facie evidence of anticipation with respect to the system and sprocket Claims 1-19 and 27-31, the burden has not shifted to Applicant to disprove the alleged characteristics of Durham and Ledvina. Applicant, however, submits that the Application does in fact provide the required rebuttal evidence in any event. As discussed in the Application, random sprockets such as those disclosed in Durham and Ledvina do not and cannot inherently disclose the systems and sprockets of Claims 1-19 and 27-31, as well as the method Claims 20-26.

As discussed in the Application, pp. 4-5, random sprockets (including random sprockets designed for noise control) often cause increases in overall chain tensions a result of their redistribution of chain tensions. As further discussed in the Application at pp. 4-5 and 13-14, the redistribution of chain tensions in a random sprocket, and the resulting effect on the overall chain tension, is affected by a number of variables including the pattern of root radii, the progression of those radii, the length of each radius relative to the chain link length. Moreover, the overall chain tension is a result of the interaction of redistributed tensions and the other tension events affecting the overall chain tension (e.g. loads from cam torque, crank torsion vibration, fuel pump torque) and their orders relative to the sprocket rotation.

The Application at pp. 11-12 and Figure 5 provides an example of a prior art random sprocket with three different root radii (selected for noise reduction). As reported in Figure 5, the use of different root radii in arranged in a random pattern also randomly redistributes chain tensions which can increase overall chain tensions.

Thus, the use of different root radii in a random sprocket alone does not necessarily result in the reduction of overall chain tensions in any system, whether

it is the bicycle sprocket of Durham or the Ledvina system. Applicant, therefore, submits that there is no technical or factual basis for the assumption that an sprocket such Durham, which is designed to enhance shifting of bicycle chains, or the sprocket disclosed in Ledvina, will necessarily satisfy the each element of Claims 1-19 and 27-31. Indeed, the claimed system, sprocket and methods are novel and nonobvious improvements over such systems.

Claims 9,19 and 30 stand rejected under 35 U.S.C. 103(a) as being unpatentable over either Durham or Ledvina. Given the above discussions of Durham and Ledvina, it is respectfully submitted that claims 9 and 19 are not unpatentable over either Durham or Ledvina. Furthermore, there is no suggestion in Durham or Ledvina to select any root radii combination or pattern that would reduce overall chain tensions in its system. Applicant respectfully submits that the Office Action's assertion at p. 4 that the sprockets and system of Claims 9, 19 and 30 was a "matter of engineering design choice"is not supported by the required evidence of motivation and incentive to make such choices prior to Applicant's invention.

For the reasons set forth above, claims 1-31 are believed to be allowable, and reconsideration and allowance of claims 1-31 are respectfully requested.

Respectfully submitted,

FITCH, EVEN, TABIN & FLANNERY

By: _____
Jon A. Birmingham
Registration No. 51,222

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FITCH, EVEN, TABIN & FLANNERY
120 S. LaSalle St., Suite 1600
Chicago, Illinois 60603
Telephone: (312) 577-7000
Facsimile: (312) 577-7007

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